



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

October 28, 2013

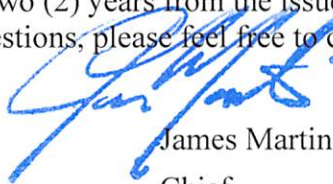
WELL WORK PERMIT
Rework/Horizontal 6A Well

This permit, API Well Number: 47-3305712, issued to STATOIL USA ONSHORE PROPERTIES, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: GOODWIN 3-2H
Farm Name: COASTAL FOREST RESOURCES
API Well Number: 47-3305712
Permit Type: Rework/Horizontal 6A Well
Date Issued: 10/28/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

ACA
✓

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 7/2/13
API #: 47-033-05712

Farm name: Coastal Forest Resources Operator Well No.: Goodwin 3-2H

LOCATION: Elevation: 1100 Quadrangle: Salem 7.5'

District: Sardis County: Harrison
Latitude: 2005 Feet South of 39 Deg. 22 Min. 10.9 Sec.
Longitude: 8885 Feet West of 60 Deg. 31 Min. 53.2 Sec.

Company: PetroEdge Energy LLC

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
4477 Williamstown Pike				
Williamstown, WV 26187	20"	120	120	Surface
Agent: Dan Mullins	13 3/8	337	323.7	Surface
Inspector: Sam Ward	9 5/8	2345	2340.88	Surface
Date Permit Issued: 2/7/13	5 1/2	13220	13206.43	Surface
Date Well Work Commenced: 4/4/13				
Date Well Work Completed: 5/5/13				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input type="checkbox"/> Cable <input type="checkbox"/> Rig <input checked="" type="checkbox"/>				
Total Vertical Depth (ft): 7368				
Total Measured Depth (ft): 13220				
Fresh Water Depth (ft.): 45				
Salt Water Depth (ft.): 1630				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 535				
Void(s) encountered (N/Y) Depth(s) N				

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OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Not completed Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Sam Mullins
Signature

7/2/13
Date

33-05712

Were core samples taken? Yes _____ No XWere cuttings caught during drilling? Yes X No _____Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Mud Log and Gamma Ray
Drill cuttings were analyzed then disposed of _____

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Well has not been fractured - transferring well into Statoil's name - Statoil will apply for a fracturing permit as soon as the well has been transferred.

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Fresh Water	45	46
Coal	535	537
Salt Water	1630	1634
Benson	5211	6880
Middlesex	6880	7256
Genesee	7256	7312
Tully Limestone	7312	7383
Hamilton	7383	7509
Lower Hamilton	7509	7661
Marcellus	7661	Not recorded

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: Statoil USA Onshore Properties Inc. 494505083 Harrison Sardis Salem 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: 3-2 H Well Pad Name: Goodwin

3 Elevation, current ground: 1100 Elevation, proposed post-construction: 1100

4) Well Type: (a) Gas ☒ Oil ☐
Other ☐
(b) If Gas: Shallow ☒ Deep ☐
Horizontal ☒

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Marcellus Shale is the target formation at a TVD of 7390 ft, a thickness of 58 ft, and a reservoir pressure of 3800 psi.

The well was drilled by PetroEdge to a depth 13,220' MD/7368' TVD. The well has been transferred to Statoil. This permit is requesting approval to complete/frac the well.

7) Proposed Total Vertical Depth: 7368 ft

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 13220 ft

10) Approximate Fresh Water Strata Depths: 45 ft

11) Method to Determine Fresh Water Depth: Offset wells

12) Approximate Saltwater Depths: 1630 ft

13) Approximate Coal Seam Depths: 535 ft

14) Approximate Depth to Possible Void (coal mine, karst, other): N/A

15) Does land contain coal seams tributary or adjacent to, active mine? No

16) Describe proposed well work: Frac 17 separate stages on a previously drilled Marcellus well.

Complete the well in the Marcellus formation in order for to Statoil to produce natural gas.

17) Describe fracturing/stimulating methods in detail:

Perforate and fracture 17 separate stages utilizing 6,100,000 gal of water and 6,247,500 lbs of sand.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 2.9 acres

19) Area to be disturbed for well pad only, less access road (acres): 2.4 acres

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WW - 6B
(1/12)

20)

CASING AND TUBING PROGRAM

TYPE	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20	New	H-40	51	120	120	Cement to surface
Fresh Water	13 3/8	New	H-40	54	337	323.7	Cement to surface
Coal							
Intermediate	9 5/8	New	J-55	36	2345	2340.88	Cement to surface
Production	5 1/2	New	P-110	20	13220	13206.43	Cement to surface
Tubing	2 3/8	New	J-55	4.7		7200	Production Tubing
Liners							

TYPE	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20	24"	0.438"	1530	Class A	1.20
Fresh Water	13 3/8	17 1/2"	0.33"	1730	Class A	1.20
Coal						
Intermediate	9 5/8	12 1/4"	0.352"	3520	Class A	1.19
Production	5 1/2	8 1/2"	0.361	12,640	Class A / 50/50 Poz	1.79 / 1.3
Tubing	2 3/8		0.19	7700		
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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- 21) Describe centralizer placement for each casing string. 13 3/8" - one 5' above guide shoe, one per joint for the next three joints. One per every other joint after that.
9 5/8" - one 5' above guide shoe, one per joint for 5 joints. One per every third joint after that.
5 1/2" - one 5' above the float shoe, one on the 3rd joint, one on every other joint thru curve to vertical.
One per every 4th joint to surface.

NOTE - WELL HAS BEEN DRILLED

- 22) Describe all cement additives associated with each cement type. _____
13 3/8" - Class A with 3% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
9 5/8" - Lead - Class A with 1% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
Tail - Class A with 2% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
5 1/2" - Lead - 50:50 Poz:Class A with 10% Salt (accelerator), 4% Bentonite (extender)
Tail - Class A with 5% Salt (accelerator), 50% Super Acid Soluble (acid soluble additive), 0.55% Super CR-1 (retarder),
0.5% Super FL-350 (non gelling fluid loss), 0.25% AG-350 (anti-gelling additive), 5 lb/sk Gilsonite (low density extender),
and 0.2% Cement Stabilizer 1 (anti-settling/stabilizing agent)

NOTE - WELL HAS BEEN DRILLED

- 23) Proposed borehole conditioning procedures. The surface and intermediate sections will be drilled with air.
Once the sections are at the proposed casing points, prior to tripping the drill pipe the hole will be circulated
with air for 3 hole volumes while rotating the drill pipe in order to clean the hole of cuttings. A water based gel spacer will be
pumped prior to cementing in order to wet the pipe and wellbore. The curve and horizontal section
will be drilled with a 12.0 lb/gal synthetic oil based mud. If an excessive amount of sliding is required to control inclination, slides
will be performed in short intervals to eliminate a dune of cuttings behind the BHA. Pump rates will be maintained between
475-500 gpm. The drill pipe will be rotated at 65-75 rpm in order to assist transporting the cuttings out of the hole. Drag values will be recorded every 160 ft with pumps off before and after
a clean up cycle. Once TD is reached clean up cycle will be performed. Bottoms up will be pumped 3 times or until hole cleans up. A clean up cycle will also be performed
at the bottom of the curve for 3 bottoms up. A 50 bbl spacer will be ran prior to the cement in order to prevent cement contamination. (NOTE: Well has been drilled)

*Note: Attach additional sheets as needed.

33-05712



Marcellus - Drilling Well Schematic

Well Name: Goodwin 3-2H
 Field Name: Marcellus
 County: Harrison County, Sardis
 API #: 47-033-05712

GLE (ft): 1,096
 RKB (ft): 19' (Pioneer 59)
 BHL: X = 1,774,296 Y = 14,290,806
 SHL: X = 1,772,841 Y = 14,296,882

Hole depth: TVD(ft): 7,369 Casing depth: 7,369
 TMD(ft): 13,220
 Profile: Horizontal
 AFE No.: 47-033-05642 (PetroEdge)

Formations & Csg Points	Depth, ft			Form. Temp. (F)	Pore Press. (EMW)	Frac Gradient (EMW)	Planned MW	Measure Depth (ft)	Program	Details
	MD	TVD	SS							
Conductor	97	97	-97	-	-	-	-	97		20" Conductor
										17 1/2" Surface
										Profile: Vertical Bit Type: Flat bottom hammer bit BHA: Air Hammer Mud: Air Surveys: Singel shot Logging: none Casing: 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 1 every joint Centralizers: Cement: 15.6 ppg single slurry Potential Drilling Problems:
Casing Point	320	320	-320	65	-	-	Air/ Mist	337		
Approximate fresh water strata										
Red Rock		1,100		-	-	-				
Saltwater Red Rock		1,650 1,750		-	-	-				
				-	-	-				
Casing Point	2,341	2,336	-2,336	82	-	>15	Air/ Mist	2,345		
										FIT/LOT: N/A EMW Profile: Nudge for anticollision Bit Type: Hammer bit / PDC from 1550' BHA: Hammer down to 1550' Mud: Air/ 10.0 ppg SOBM from 1550' Surveys: Single shot Logging: Casing/Liner: 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. Liner Hanger: N/A 1 every 3 joints Centralizers: Cement: 15.6 ppg single slurry Potential Drilling Problems:
KOP	6,002	5,994	-5,994	105	-	-	12.0			
Genesee Shale		7,157	-7,157	117	-	-	12.0			
Marcellus		7,343	-7,343	118	-	-	12.0			
Target Top		7,341	-7,341	118	-	-	12.0			
Landing point	7,853	7,344								
Target Btm		7,441	-7,441	119	-	-	-			
Onondaga		7,470	-7,470	-	-	-	-			

TMD: 13,220
 TVD: 7,369

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Last Revision Date: 6/07/13
 Revised by: KGL

Note: Depths are referenced to RKB
 Note: Not Drawn to Scale

SEP 27 2013 Cement Outside Casing

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Marcellus - Completion Well Schematic - Pre-Frac

Well Name: Goodwin 3-2H GLE (ft): 1,096 Completion: Lateral Length 5,225 ft MD
 Field Name: Marcellus RKB (ft): 19' (Pioneer 59) Average Lateral TVD 7,375 ft TVD
 County: Harrison County, Sardis BHL X = 1,774,296.04 Y= 14,290,805.54 Profile: Horizontal
 API #: 47-033-05712 SHL X = 1,772,841.00 Y= 14,296,882.00 AFE No.: 47-033-05712 (PetroEdge)

Formations & Csg Points	Depth, ft			Form. Temp. (F)	Measure Depth (ft)	Drilling Hole Size, Casing, and Cement
	MD	TVD	SS			
Conductor	97	97	-97	-	#	Surface Interval: 17 1/2" Surface 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 15.6 ppg single slurry Intermediate Interval: 12 1/4" Intermediate 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. 15.6 ppg single slurry Production Interval: 8 1/2" Production 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD OD: 5.5 ID: 4.778 Drift ID: 4.653 Lead: 14.5 ppg to Surface Tail: 15.6 ppg to ~7,000' Plug Bump Pressure: 2900-3400 psi Floats Held (Y/N) Yes Marker Joints: #1 4541 ft MD top set depth #2 6059 ft MD top set depth
Casing Point	320	320	-320	65	#	Wellhead
Approximate fresh water strata						
Big Injun (Base)	0					Casing Head: 11"-5M TOP Tubing Head: 11" 5M BTM x 7-1/16" 10M TOP - Installed and p-test to 5k psi Prod Tree: 7-1/16" 10M x 2-1/16" 5M Run & Wings - not installed
Casing Point	2,341	2,336	-2,336	82	#	Chronology
Proposed Completion						
Frac Design: Slickwater, 8,250 bbl clean, 85% 40/70, 15% 30/50 Perforation Design: 18- 300' stages; 5 clusters/stg x 60' spacing Final Completion: 2-3/8" L80 Tubing with 5.5" PLT Packer at 30 deg Inc.						
KOP1	0	0				Current PBTD (ft MD) 13,078 Drilled Hole Depth: Toe Sleeve Depth (ft MD): 13,078 TMD (ft) 13,220 Float Collar Depth (ft MD): 13,123 TVD (ft) 7,369 Shoe Depth (ft MD): 13,206
KOP2	6,002	5,994	-5,994	105		
Geneseo Shale		7,157	-7,157	117		
Marcellus		7,343	-7,343	118		
Target Top		7,341	-7,341	118		
Landing point	7,853	7,344				
Target Btm		7,441	-7,441	119		
Onondaga		7,470	-7,470	-		

Last Revision Date: 8/1/2013
 Revised by: JSG

Note: Depths are referenced to RKB
 Note: Not Drawn to Scale

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 Cement Outside Casing

WV Department of
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Statoil										Marcellus - Completion Well Schematic - Pre-Frac									
Well Name: Goodwin 3-2H				GLE (ft): 1,096				Completion: Lateral Length 5,225 ft MD											
Field Name: Marcellus				RKB (ft): 19' (Pioneer 59)				Average Lateral TVD 7,375 ft TVD											
County: Harrison County, Sardis				BHL X = 1,774,296.04 Y = 14,290,805.54				Profile: Horizontal											
API #: 47-033-05712				SHL X = 1,772,841.00 Y = 14,296,882.00				AFE No.: 47-033-05712 (PetroEdge)											
Formations & Csg Points	Depth, ft			Form. Temp. (F)	Measure Depth (ft)		Drilling Hole Size, Casing, and Cement												
	MD	TVD	SS																
Conductor	97	97	-97	-	#		Surface Interval: 17 1/2" Surface 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 15.6 ppg single slurry Intermediate Interval: 12 1/4" Intermediate 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. 15.6 ppg single slurry Production Interval: 8 1/2" Production 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD OD: 5.5 ID: 4.778 Drift ID: 4.653 Lead: 14.5 ppg to Surface/Tail: 15.6 ppg to ~7,000' Plug Bump Pressure: 2900-3400 psi Floats Held (Y/N) Yes Marker Joints: #1 4541 ft MD top set depth #2 6059 ft MD top set depth												
Casing Point	320	320	-320	65	#		Wellhead Casing Head: 11"-5M TOP Tubing Head: 11" 5M BTM x 7-1/16" 10M TOP - Installed and p-test to 5k psi Prod Tree: 7-1/16" 10M x 2-1/16" 5M Run & Wings - not installed												
Approximate fresh water strata							Chronology												
Big Injun (Base)	0						Rig Release Date: 5/5/2013 Open Hole Logging: MWD+GR												
Casing Point	2,341	2,336	-2,336	82	#		Proposed Completion Frac Design: Slickwater, 8,250 bbl clean, 85% 40/70, 15% 30/50 Perforation Design: 18- 300' stages; 5 clusters/stg x 60' spacing Final Completion: 2-3/8" L80 Tubing with 5.5" PLT Packer at 30 deg Inc.												
KOP1	0	0																	
KOP2	6,002	5,994	-5,994	105															
Genesee Shale		7,157	-7,157	117															
Marcellus		7,343	-7,343	118															
Target Top		7,341	-7,341	118															
Landing point	7,853	7,344					Current PBTD (ft MD) 13,078 Toe Sleeve Depth (ft MD): 13,078 Float Collar Depth (ft MD): 13,123 Shoe Depth (ft MD): 13,206												
Target Btm		7,441	-7,441	119			Drilled Hole Depth: TMD (ft) 13,220 TVD (ft) 7,369												
Onondaga		7,470	-7,470	-															
Last Revision Date: 8/1/2013 Revised by: JSG										Note: Depths are referenced to RKB Note: Not Drawn to Scale									

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Marcellus - Drilling Well Schematic

Well Name: Goodwin 3-2H	GLE (ft): 1,096	Hole depth: TVD(ft): 7,369	Casing depth: 7,369
Field Name: Marcellus	RKB (ft): 19' (Pioneer 59)	TMD(ft): 13,220	13,206
County: Harrison County, Sardis	BHL: X = 1,774,296 Y = 14,290,806	Profile: Horizontal	
API #: 47-033-05712	SHL: X = 1,772,841 Y = 14,296,882	AFE No.: 47-033-05642 (PetroEdge)	

Formations & Csg Points	Depth, ft			Form. Temp. (F)	Pore Press. (EMW)	Frac Gradient (EMW)	Planned MW	Measure Depth (ft)	Program	Details
	MD	TVD	SS							
Conductor	97	97	-97	-	-	-	-	97		20" Conductor
										17 1/2" Surface
Casing Point	320	320	-320	65	-	-	Air/ Mist	337		Profile: Vertical Bit Type: Flat bottom hammer bit BHA: Air Hammer Mud: Air Surveys: Singel shot Logging: none Casing: 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 1 every joint Centralizers: Cement: 15.6 ppg single slurry Potential Drilling Problems:
Approximate fresh water strata										
Red Rock		1,100		-	-	-				FIT/LOT: N/A EMW Profile: Nudge for anticollision Bit Type: Hammer bit / PDC from 1550' BHA: Hammer down to 1550' Mud: Air/ 10.0 ppg SOBM from 1550' Surveys: Single shot Logging: Casing/Liner: 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. Liner Hanger: N/A Centralizers: 1 every 3 joints Cement: 15.6 ppg single slurry Potential Drilling Problems:
Saltwater Red Rock		1,650 1,750		-	-	-				
Casing Point	2,341	2,336	-2,336	82	-	>15	Air/ Mist	2,345		FIT/LOT: N/A ppg EMW Profile: Horizontal; KOP@ 6002 with a 10 deg/100 ft curve Bit Type: 8 1/2" PDC BHA: Directional Assembly (Steerable Motor) + MWD w/ GR Mud: Air to KOP and SOBM to TD Surveys: MWD + GR Logging: Mud Logging the whole interval Casing/Liner: 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD Marker Joints: 10' @ '6059' and 4541' Centralizers: 70% stand-off in OH section Cement: Lead: 14.5 ppg to Surface' Tail: 15.6 ppg to ~7,000' Potential Drilling Problems:
KOP	6,002	5,994	-5,994	105	-	-	12.0			Notes / Comments: Stimshot valve at 13,078'. Float at 13,123'. Rig Released 5/4/2013 @ 0600am
Geneseo Shale		7,157	-7,157	117	-	-	12.0			
Marcellus		7,343	-7,343	118	-	-	12.0			
Target Top		7,341	-7,341	118	-	-	12.0			
Landing point	7,853	7,344								
Target Btm		7,441	-7,441	119	-	-	-			
Onondaga		7,470	-7,470	-	-	-	-			

Last Revision Date: 6/07/13
Revised by: KGL

Note: Depths are referenced to RKB
Note: Not Drawn to Scale

TMD: 13,220
TVD: 7,369

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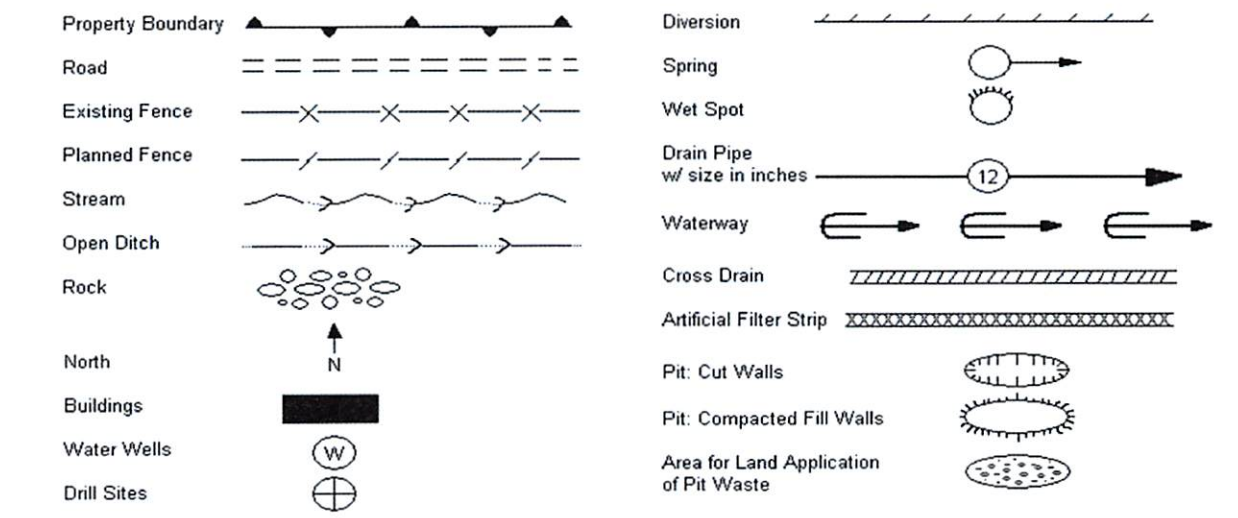
Office of Oil and Gas

SEP 27 2013

Cement Outside Casing

WV Department of
Environmental Protection

Department of
Environmental Protection



Proposed Revegetation Treatment: Acres Disturbed 2.4 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 90 bales Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	40	Orchard Grass	40
Landino Clover	5	Landino Clover	5
Meadow Mix	50	Meadow Mix	50

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: S. J. D'Amico II

Comments: Upgrade E&S as necessary per WV DEP E&S Manual.

Title: Oil & Gas Inspector

Date: 9/18/2013

Field Reviewed? (X) Yes () No

RECEIVED
Office of Oil and Gas

SEP 27 2013

WV Department of
Environmental Protection



Water Management Plan: Primary Water Sources



WMP-01523

API/ID Number: 047-033-05712

Operator:

Statoil USA Onshore Properties Inc.

Goodwin 3-2H

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for multiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interpreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED OCT 25 2013

Source Summary

WMP- 01523

API Number:

047-033-05712

Operator:

tatoil USA Onshore Properties Inc

Goodwin 3-2H

Stream/River

● Source **McIntyre Fork** Harrison Owner: **Tina J. Moore Swiger**

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude:

Intake Longitude:

1/11/2014

1/11/2015

7,600,000

39.370285

-80.516536

☐ Regulated Stream?

Ref. Gauge ID:

3061500

BUFFALO CREEK AT BARRACKVILLE, WV

Max. Pump rate (gpm):

500

Min. Gauge Reading (cfs):

23.61

Min. Passby (cfs)

0.39

DEP Comments:

● Source **Rock Camp Run** Harrison Owner: **Coastal Forest Resources Co.**

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude:

Intake Longitude:

1/11/2014

1/11/2015

7,600,000

39.36948

-80.52567

☐ Regulated Stream?

Ref. Gauge ID:

3061500

BUFFALO CREEK AT BARRACKVILLE, WV

Max. Pump rate (gpm):

500

Min. Gauge Reading (cfs):

23.61

Min. Passby (cfs)

0.10

DEP Comments:

Source Detail

WMP- 01523

API/ID Number: 047-033-05712

Operator: tatoil USA Onshore Properties Inc

Goodwin 3-2H

Source ID: 27169

Source Name: McIntyre Fork

Source Latitude: 39.370285

Tina J. Moore Swiger

Source Longitude: -80.516536

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 2

County: Harrison

Anticipated withdrawal start date: 1/11/2014

Anticipated withdrawal end date: 1/11/2015

Total Volume from Source (gal): 7,600,000

Max. Pump rate (gpm): 500

Max. Simultaneous Trucks: 1

Max. Truck pump rate (gpm): 500

☐ Endangered Species? ☐ Mussel Stream?

☐ Trout Stream?

☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☐ Gauged Stream?

Reference Gaug

3061500

BUFFALO CREEK AT BARRACKVILLE, WV

Drainage Area (sq. mi.)

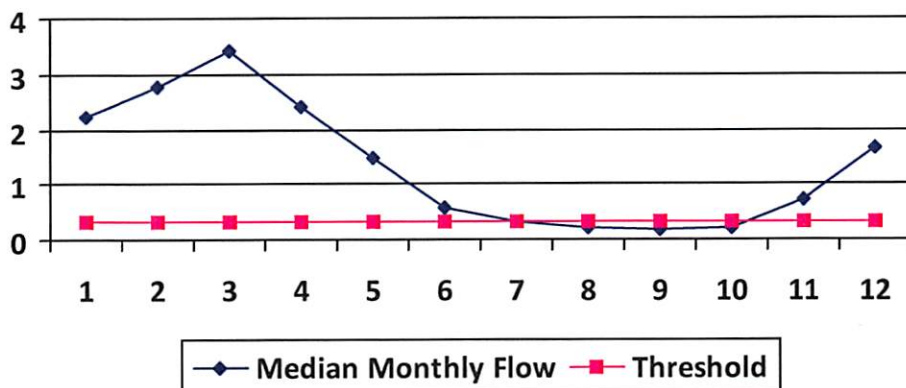
116.00

Gauge Threshold (cfs):

15

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	2.24	1.50	0.85
2	2.76	1.50	1.37
3	3.42	1.50	2.02
4	2.43	1.50	1.03
5	1.46	1.50	0.07
6	0.58	1.50	-0.82
7	0.32	1.50	-1.07
8	0.22	1.50	-1.17
9	0.17	1.50	-1.23
10	0.21	1.50	-1.18
11	0.74	1.50	-0.65
12	1.66	1.50	0.26

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.26

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 1.11

Headwater Safety (cfs): 0.06

Ungauged Stream Safety (cfs): 0.06

Min. Gauge Reading (cfs): 23.61

Passby at Location (cfs): 0.39

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

WMP-01523

API/ID Number: 047-033-05712

Operator: tatoil USA Onshore Properties Inc

Goodwin 3-2H

Source ID: 27170

Source Name: Rock Camp Run

Source Latitude: 39.36948

Coastal Forest Resources Co.

Source Longitude: -80.52567

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 0.5 County: Harrison

Anticipated withdrawal start date: 1/11/2014

Anticipated withdrawal end date: 1/11/2015

Total Volume from Source (gal): 7,600,000

Max. Pump rate (gpm): 500

Max. Simultaneous Trucks: 1

Max. Truck pump rate (gpm): 500

☐ Endangered Species? ☐ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☐ Gauged Stream?

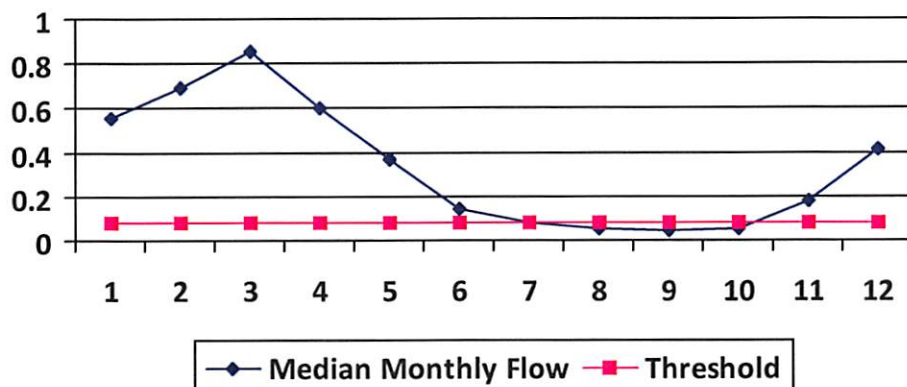
Reference Gaug: 3061500 BUFFALO CREEK AT BARRACKVILLE, WV

Drainage Area (sq. mi.): 116.00

Gauge Threshold (cfs): 15

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.56	1.21	-0.59
2	0.69	1.21	-0.46
3	0.85	1.21	-0.29
4	0.61	1.21	-0.54
5	0.37	1.21	-0.78
6	0.14	1.21	-1.00
7	0.08	1.21	-1.07
8	0.06	1.21	-1.09
9	0.04	1.21	-1.11
10	0.05	1.21	-1.09
11	0.18	1.21	-0.96
12	0.41	1.21	-0.73

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.06

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 1.11

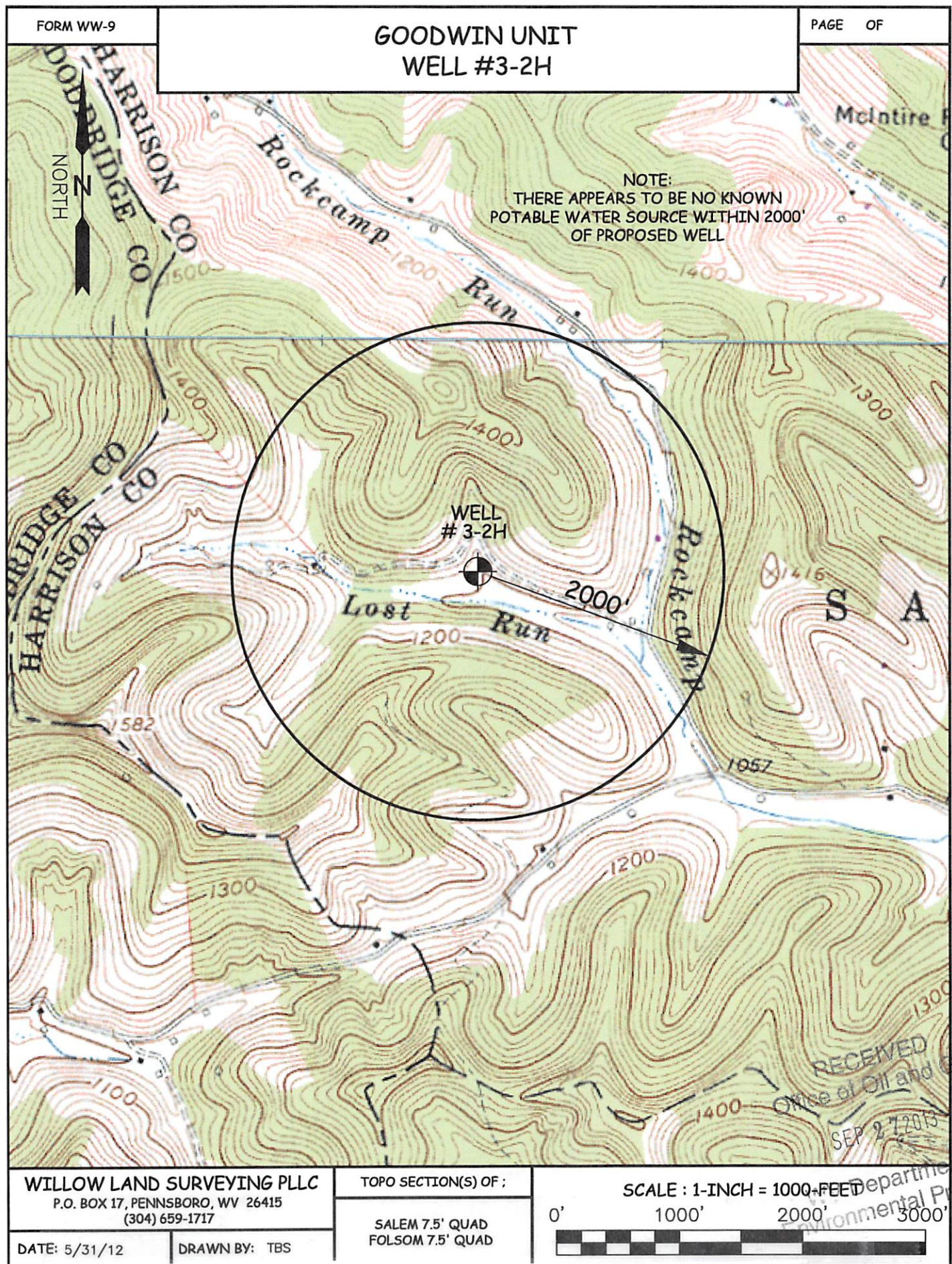
Headwater Safety (cfs): 0.02

Ungauged Stream Safety (cfs): 0.02

Min. Gauge Reading (cfs): 23.61

Passby at Location (cfs): 0.10

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.



- Lease road entrance – Lat.: 39.36872, Long.: -80.52592
- Lease road entrance is 0.5 miles northwest of Co Route 5/1 on Lost Run

GOODWIN 3-2H (47-033-05712)

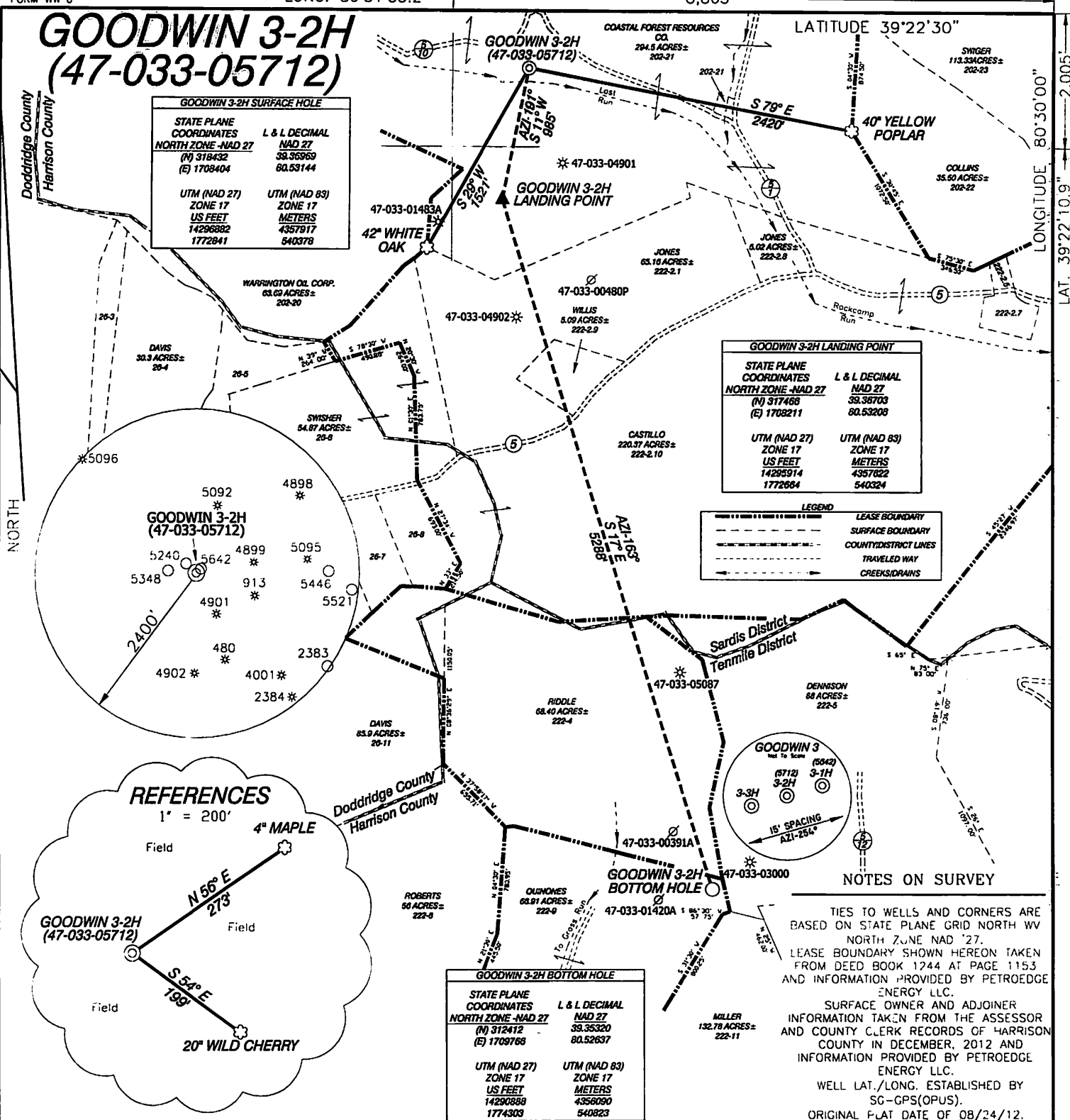
GOODWIN 3-2H SURFACE HOLE			
STATE PLANE COORDINATES		L & L DECIMAL	
NORTH ZONE -NAD 27		NAD 27	
(N) 318432		39.36969	
(E) 1708404		80.53144	
UTM (NAD 27)		UTM (NAD 83)	
ZONE 17		ZONE 17	
US FEET		METERS	
14296882		4357817	
1772841		540378	

NORTH

LONGITUDE 80°30'00"

LAT. 39°22'10.9"

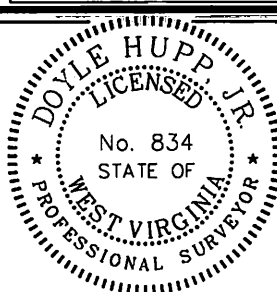
2,005'



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S.
834

Doyle Hupp Jr.
HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JULY 3, 2013

OPERATORS WELL NO. GOODWIN 3-2H

API NO. 47-033-05712

WELL NO. 47-033-05712

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2207 (BK44-39)
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS



WELL TYPE : OIL GAS ☒ LIQUID INJECTION WASTE DISPOSAL "GAS" PRODUCTION ☒ STORAGE DEEP SHALLOW ☒

LOCATION : ELEVATION 1,396' WATERSHED LOST RUN OF ROCKCAMP RUN
DISTRICT SARDIS COUNTY HARRISON QUADRANGLE SALEM 7.5'

SURFACE OWNER COASTAL FOREST RESOURCES CO. ACREAGE 294.5±
ROYALTY OWNER EARL & WILMA R. GOODWIN, et al LEASE ACREAGE 1,415.31±

PROPOSED WORK : LEASE NO.
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE ☒ PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS
ESTIMATED DEPTH 7,397' TVL 13,383' MVD

WELL OPERATOR STATOIL USA ONSHORE PROPERTIES INC. DESIGNATED AGENT WILLIAM T. FAHEY II
ADDRESS 2103 CITYWEST BLVD., SUITE 800 HOUSTON, TX 77042 ADDRESS 2116 PENNSYLVANIA AVENUE WEIRTON, WV 26062

COUNTY NAME PERMIT